



**TRACTOR MODEL:
VR31-50-----VR31-60**

**OWNER'S/SERVICE
MANUAL**

SAFETY FIRST

NOTE: **DO NOT** attempt to start the engine or operate this machine until you have read all safety information and operating procedures in this manual.



This is a Safety Alert Symbol used to alert you to possible danger to you or someone else's personal safety. Be alert to the accompanying messages in this manual.



CAUTION:

Your ZIPPER is equipped with an Ignition Interlock Safety System. This system is designed to protect the operator and others in the immediate area by preventing the engine from starting when the PTO switch is on or the Steering Levers are not in the locked position.

IMPORTANT

Listed below are a common set of rules you should read and follow. REMEMBER, your safety and the safety of others depends on the operator's awareness and adherence to these basic rules.

1. Know the controls and how to stop quickly. READ THE OWNERS MANUAL
2. DO NOT allow children to operate the mower. DO NOT allow adults to operate without proper instruction.
3. DO NOT carry passengers. Keep children and pets a safe distance away.
4. Clear the work area of objects which might be picked up and thrown.
5. Disengage clutch and lock steering levers in neutral before attempting to start the engine.
6. Disengage clutch and stop engine before leaving the operator's position.
7. Disengage clutch when transporting or not in use.
8. Disengage clutch and stop engine before making any repairs or adjustments.
9. Take all possible precautions when leaving the mower unattended, such as disengaging the PTO, lowering the deck, locking the steering levers in neutral, setting the parking brake, stopping the engine and removing the key.
10. **DO NOT** stop or start suddenly when going up or downhill. Mow up and down the face of steep slopes; never across the face.

11. Reduce speed and exercise extreme caution on slopes and in sharp turns to prevent tipping or loss of control. Be especially cautious when changing direction on slopes.
12. Always stay alert for holes, rocks, and roots in the terrain and other hidden hazards.
13. Watch out for traffic when crossing or near roadways.
14. When using any attachments, never direct discharge of material toward bystanders nor allow anyone near the mower while in operation.
15. Handle gasoline with care (it is highly flammable)
 - a. Use approved gasoline container.
 - b. Never remove the fuel cap or add gasoline to a running or hot engine.
 - c. Do not fill tank indoors and wipe up any spilled gasoline
 - d. Exhaust fumes are dangerous. DO NOT run the engine indoors.
16. Keep the tractor and attachments in good operating condition and keep safety devices working properly.
17. Keep all nuts, bolts and screws tight to be sure the equipment is in safe working condition.
18. Never store the equipment with gasoline in the tank inside a building where fumes may reach an open flame or spark. Allow engine to cool before storing in any enclosure.
19. To reduce fire hazard, keep the engine free of grass, leaves, or excessive oil and grease.
20. The tractor and attachments should be stopped and inspected for damage after striking a foreign object, and the damage should be repaired before restarting and operating the equipment.
21. DO NOT change the engine governor settings or overspeed the engine.
22. When using the mower, proceed as follows:
 - a. Mow only in daylight or in good artificial light.
 - b. Never make a cutting height adjustment while engine is running.
 - c. Shut off engine when removing the grass catcher or unclogging the chute.
 - d. Check the blade bolt tightness at frequent intervals.
23. Disengage power to mowing deck before backing up. DO NOT mow in reverse unless absolutely necessary and then only after careful observation of the entire area behind the mower.

Dealer Preparation For Operation

Customer Note: Your ZIPPER Dealer is Expected to complete the following predelivery operations and review all safety precautions in this manual with you before or upon delivery of this machine.

NOTE: All references to “Right, Left, Front, and Back” are from sitting in the driver’s seat.

WHEELS

Remove packing crate from the machine and install the drive wheels and tail wheel. Fill the tail wheel with grease

BATTERY

Connect positive cable first, and then connect the ground cable.

IGNITION INTERLOCK SAFETY SYSTEM



DANGER: Failure of the IGNITION INTERLOCK SAFETY SYSTEM, together with operation of the machine could result in personal injury.

Check the Interlock Safety System to make sure it is functioning properly. The engine must not start unless the steering levers are in the neutral locked position and the PTO switch is off. The engine must kill if the operator leaves the seat with the steering levers down and/or PTO switch in the on position.

MACHINE CHECK LIST

The following list should be performed before starting the engine on a new machine.

1. Check the engine oil level (see engine manual for oil recommendations)
2. Check the oil level in the hydrostatic oil tank located at the right side of the engine. The oil level should be 1” below the top of the tank. (See Hydraulic System for oil recommendations)

3. Fill fuel tank with fresh clean gasoline (see engine manual for recommended fuels)
4. Check tension on the hydraulic pump drive, deck drive, and blade drive belts. (see belt adjustment section for proper belt adjustments)
5. Check pressure in all tires (see fig. 1) The drive wheels and gauge wheels must have equal pressure to maintain an even cut.
6. Check the blade bolts to be sure they are tight. Also check the deck belt tension.



WARNING: Never operate the deck without the grass chute and belt guard in place.

TIRE PRESSURE PSI

Drive Tires.....10-14

Tail Wheel.....10-16

Gauge Wheel.....8-12

REGISTRATION & DELIVERY

Fill out the warranty registration card and mail the proper copy to ZIPPER MOWERS within 10 days.

Warranty is registered under Model and Serial Number located under the front of the left hand control panel on the tractor and under the left hand deck cover on the deck.

Upon delivery of the machine, go over all the controls and how to operate the unit as covered in this manual. Emphasize all the safety precautions covered in the manual.

Both dealer and customer must sign the warranty registration card upon delivery.

MACHINE OPERATION

NOTE: The design and configuration of equipment, hazard control and accident prevention are dependant upon the proper training of personal involved in the operation, transportation, maintenance and storage of the equipment. DO NOT let children or unqualified operators run the equipment.

STARTING THE ENGINE

NOTE: The PTO switch must be in the off position and the steering levers in the neutral lock position before the engine starter will engage. In this manual it will be referred to as the **IGNITION INTERLOCK SAFETY SYSTEM. (IISS)**



WARNING: never operate this machine with the **IISS** disconnected, bypassed or malfunctioning.



WARNING: Engine exhaust gases contain poisonous carbon monoxide. Avoid breathing fumes and never run the engine in a closed building or confined area.

IMPORTANT: Always apply the parking brake before starting the engine.

1. Pull choke out to the **CLOSED** position. On a warm engine leave choke in the **OPEN** position.
2. Open throttle to half speed.
3. Turn ignition key to **START**. Return key to **ON** position as soon as engine starts.
NOTE: The ignition switch has an integrated light switch so it has 2 **ON** positions; one is to turn on headlights.
4. Slowly push the choke down to the **OPEN** position after the engine starts to warm up.
5. Allow the engine to warm up at a low **RPM** for 2 to 5 min. before putting the engine under full load

IMPORTANT DO NOT crank the engine continuously more than 10 seconds at a time. If the engine does not start, allow a 1 min. cool down period between start attempts. Failure to follow these guidelines can burn out the starter.

STOPPING THE ENGINE

1. Run engine at half speed for a minimum of one minute with no load for cool down purposes.
2. Turn ignition key to **OFF** and remove key.
3. Apply the parking brake.

STEERING CONTROL

After starting the engine, release the parking brake and fold down the steering levers.

NOTE: If the steering levers are folded down before the parking brake is released it will kill the engine.

The steering levers control forward and reverse movement, speed of travel as well as turning and braking. Each lever controls the direction and speed of the corresponding drive wheel. To go forward, push both levers forward at the same time. To go backward, pull both levers toward the operator at the same time. To turn the machine to the right, move the right lever back and/or the left lever forward. To turn left, move the left lever back and/or the right lever forward.

NOTE: When turning always make sure both drive wheels are rotating this helps prevent turf damage.



CAUTION: Any sudden movement of the steering levers will result in sudden braking or opposite direction of travel.

BRAKING

Forward or reverse movement is slowed or stopped by returning the steering levers toward the neutral position.

NOTE: The parking brake is for parking only. DO NOT use to slow or stop the machine or you risk damage to the hydraulic drive system.

ENGAGING THE DECK OR ATTACHMENTS

The deck is driven by an electric clutch attached to the engine crankshaft. To engage the deck, set the engine throttle to 1/3 speed and lift up on the PTO switch located on the R/H control panel aft of the steering lever. (Red switch)

For best operation of the deck, the engine should be run at full throttle and the ground speed controlled by the steering levers



WARNING: Operator must be in the seat for the PTO to Activate. If the attachment runs without the operator in the seat, stop engine and repair IISS before further use. When side discharge deck is in use extreme caution must be taken not to direct discharge in the direction of persons or pets.

Ref	Service at Intervals Indicated	Daily Prestart	Daily After Stopping	4 Hr.	8 Hr.	25 Hr	40 Hr	100 Hr	500 Hr
A	Verify Ignition Safety System	X							
A	Check Engine Oil	X		X					
A	Check Hydraulic Oil	X							
A	Visually Inspect Tractor	X							
A	Visually Inspect Tires	X							
A	Clean Underside of Deck		X						
A	Lube Deck Gauge Wheels				X				
B	Clean Air Filter Element					X			
A	Lube Gauge Wheel Fork Tubes						X		
A	Lube Spindle Housing						X		
A	Check Battery and Connections						X		
C	Change Engine Oil (2)							X	
C	Change Oil Filter (2)							X	
B	Change Air Filter Cartridge (1)							X	
A	Check Tire Pressure						X		
A	Torque Wheel Nuts							X	
A	Change Hydraulic Oil & Filter (3)								X

NOTES:

1. More often under dusty conditions
2. Initial oil and filter change is at 5 hrs.
3. Initial filter change is at 100 hrs

REFERENCE:

A-See Owners Manual
B-See Engine Manual
C-See Both Owners and Engine Manuals



WARNING: When servicing the machine, shut down machine, remove key, lock steering levers in neutral lockout and set parking brake.

The preceding table is for your quick reference. The maximum intervals between services are listed. If dry and/or dusty

conditions are encountered, time between service should be decreased.

Routine lubrication and maintenance are the most important steps toward longer machine life, reducing down-time, upkeep costs, increasing productivity and quality mowing

IGNITION SAFETY SYSTEM

Check the IISS daily, prior to operation. This system is important to the safety of persons in the area as well as operator safety. It should be repaired immediately if malfunctioning. To check the system, follow these steps.

1. Begin with the parking brake engages, PTO switch off and steering levers in neutral lock position.
2. Move the steering levers into the operating position and turn the ignition key to start. The starter should not respond.
3. Return the levers to the neutral lock position and pull the PTO switch to on and turn ignition key. The starter should not respond.

If the starter responds to either of these tests, turn off ignition switch and make necessary corrections before further operation of the machine. Otherwise proceed with preoperative checks.

SEAT SWITCH

The seat switch should be checked before each operation. The machine should not be operated with an inoperative switch. To check the seat switch, follow these steps.

1. Start engine while seated in the operator's seat. Move steering lever to operating position and rise from the seat- the engine should kill.
2. Move the steering lever back to neutral lock and restart the engine. Pull the PTO switch to on position and rise from the seat – the deck should disengage and the engine should kill.

If the engine fails to kill during either of these tests, turn off ignition switch and correct immediately.

BREAK IN SERVICES

A new engine requires special break-in maintenance. Read the appropriate section of the engine manual. Engine oil and filter should be changed after first 5 hours of operation.

All new belts should be checked and adjusted after the first 5 hours of operation. See belt adjustment section on proper belt adjustment.



WARNING: Never check or adjust any belts with engine running. Never operate machine without replacing belt guards after adjusting belts.

HYDRUALIC SYSTEM

IMPORTANT: Care must be taken to keep any dirt or moisture from entering the hydraulic system. Minute amounts of either will greatly reduce the life of the components. Care should be taken to remove all dirt from around the breather cap before removal.

The hydraulic tank is located at the right hand side of the engine.

Check hydraulic oil daily. Oil level should be 1" below the top of the tank. To check the oil, remove breather cap, oil should be visible in the contaminant screen inside the tank.

IMPORTANT: Use only 10W-30-engine oil in the hydraulic system and an approved 25-micron rated oil filter.

The hydraulic filter should be changed after the first 100 hours of operation, then every 500 hours thereafter.


NOTE: If the performance of the drive system becomes sluggish or there is an appearance of dirt or water in the oil, the oil and filter should be changed in the system.

MOVING THE MOWER WITHOUT POWER

Do not exceed a speed of more than 2 mph when the moving the mower without power.

In order to transport the mower without power, you must first release the hydraulic pressure by using the bypass valve located on each pump. Lift the mower seat to gain access to the pump valves. The valves are a 5/8" hex head located on the valve block of each of the pumps, with a cross hole through it. Loosen the bypass valve on each pump, three turns counterclockwise. Move the mower and tighten the bypass valve on each pump three turns clockwise.


Great care must be taken to insure that all particles that may cause contamination to the system be removed from around the filter and housing before removal. To clean around the filter use a solvent and brush to remove oil and dirt. Then use compressed air to final clean the area. Also use compressed air to clean the oil cooler located on the top of the engine by blowing through the cooling fins from the inboard side.


 **WARNING:** Hydraulic oil escaping under pressure can penetrate the skin. Before applying pressure to hydraulic system, make sure all connections are tight and all hoses and lines are in good condition. To find a leak under pressure, use a piece of cardboard or wood-**NEVER** use your hands. Shut engine off and remove ignition key before opening any hydraulic lines. Eye protection should be worn when servicing the hydraulic system.

IMPORTANT: Always keep the transmission pump oil cooler and cooling fins clean. Extra heat caused by oil and dirt build up on the pump or oil cooler will cause premature wear on the hydraulic system

ELETRICAL SYSTEM

The electrical system is a 12-volt neg. ground. The factory-installed battery is a U1L9. The battery is located on the Left Hand side of the engine. Check battery connections every 40 hours to ensure they are clean and tight.

 **WARNING:** When jumpstarting a low or dead battery, keep away from open flame or spark. Always wear eye protection. Do not breathe battery fumes and avoid skin contact with battery acid. If contact does occur, flush area with cold water and consult physician.

 **WARNING:** When jumpstarting a battery follow these steps to avoid sparks that could cause gases to explode.

1. Attach the first jumper cable from the positive (+) terminal of the good battery to the positive (+) of the dead battery.
2. Attach the second cable from the negative (-) terminal of the good battery to the negative (-) terminal of the dead battery.

IMPORTANT: A 40-amp fuse protects the electrical system. If there is an overload on the circuit, the fuse will blow. The cause of the overload should be located and fixed before installing a new fuse.

ENGINE OIL SYSTEM

Check engine oil level at the start of each day and again after 4 hours of operation. Oil must always be between the marks on the dipstick. Refer to engine manual for oil change intervals.

To change oil, park track on a level surface, remove key, put steering lever in the neutral lock position and apply parking brake. Place an oil pan under the drain plug, located on the R/H side of the engine. and remove drain plug. Remove the old filter. Lubricate gasket on new

filter with new oil and install. Tighten filter by hand only. Replace oil drain plug and add new oil (oil fill hole located on aft valve cover). DO NOT overfill. See engine manual for capacity, API service class and viscosity.



WARNING: During normal operation, oil heats to a level that may cause severe burns. Allow engine to cool before service.

ENGINE AIR FILTER

VR31-50 VR31-60

Clean/change outer element every 150 hours.

Clean/change inner element every 250 hours.

These procedures should be performed more often in dusty conditions. See engine manual for further instructions.

ENGINE COOLING SYSTEM

The engine is an air-cooled unit. Grass, chaff or dirt may clog the rotating screen and the air-cooling system. Yearly or every 100 hours remove the cooling shrouds and clean cooling fins. Also, clean dirt and oil from the external surfaces of engine, this may also cause improper cooling. In dusty conditions clean more often.

IMPORTANT: Never attempt to make engine adjustments while engine is running. Do not operate engine without cooling shrouds installed, this will cause overheating.

FUEL SYSTEM



WARNING: Observe usual fuel handling precautions. Do not smoke while refueling. Do not fill tank with engine running or while engine is hot. Keep fuel away from open flame or spark. Keep fuel in proper container. Read and observe all safety precautions in this manual. Fuel capacity is 12 gal. Always use clean fresh fuel. Unleaded gasoline is recommended. See manual for further recommendations.

An inline fuel filter is located just before the engine. If filter becomes clogged, it should be replaced. There is a fuel shutoff valve located at the bottom of the tank. This valve should be closed to prevent fuel loss when changing filter. And servicing the engine

LUBRICATON

NOTE: The best time to grease the bearings **on** your **ZIPPER** is right after you have completed mowing and cleaned the machine.

Use SAE multi-purpose grease on all grease zerks.

There are 7 grease zerks on the machine. The deck gauge wheels should be greased every 8 hours. The spindle bearings and gauge fork bearings should be greased every 40 hours

BLADE CARE



DANGER: Never inspect or remove blades with engine running or key in ignition. Always remove key and set parking brake.

For best results keep the mower blades sharpened.

Do not sharpen blades while mounted on the spindles. Blades may be sharpened on a grinder or by filing. When grinding, care should be used to maintain blade balance. A blade balancer should be used after sharpening. Unbalanced or bent blades will cause excessive vibration and decrease the life of the deck



WARNING: Never use any form of heat to straighten a bent blade. Never weld a cracked or broken blade- **REPLACE THEM.**

BELT ADJUSTMENT.



WARNING: Never check or adjust any belt with engine running.

NOTE: Do not over tighten any belt. A belt that is too tight will run hotter, create unnecessary side pressure on bearings and cause premature failure of belts and bearings.



WARNING: Do not operate machine without all belt guards and deck covers in place.

BELT ADJUSTMENT

There are two belts that can need periodic adjustment: The drive belt from engine to the pumps and the drive belt from the engine to the mower deck.

Both of these belts can be adjusted at the back of the machine with the springs and idler arms located on the on the engine plate. Tighten the jam nut until spring and belt are tight. If the belt is cracked, split or does not have enough adjustment, replace the belt.



WARNING: Never check or adjust any belt with engine running.

STEERING ADJUSTMENT

The machine has been set at the factory so that it will not creep forward or backward while the engine is running and the steering levers are in the neutral lock position. However, if the machine should begin to creep or one wheel runs faster than the other, adjustments must be made. Contact authorized **ZIPPER** dealer for steering cable adjustment.

EXTERIOR SURFACE

The machine should be washed regularly to maintain its appearance.



WARNING: When washing the inside of machine, **DO NOT** direct water spray around the hydraulic oil tank breather cap.

The mower deck should be cleaned after each day of use for best mowing results. Water pressure from a garden hose will clean the

underside of the deck if the grass clippings have not dried. Otherwise, a putty knife or other flat object may be needed to remove dried clippings and dirt.

STORAGE:

To insure the machine will be ready for the next mowing season, the following steps should be taken when storing the machine at the end of the season.

1. Wash the machine to remove all grass, dirt and debris.
2. Visually inspect for any worn or damaged parts that need replaced and order them from your **ZIPPER** dealer.
3. Lubricate the machine according to lubrication instructions.
4. Lightly oil the underside of deck to prevent rusting.
5. Drain fuel tank and run engine to remove all gas from carburetor.
6. Perform other engine operations as outlined under storing engine in the engine manual.
7. Remove battery and store in a dry place. Protect the battery from freezing temperatures. Occasionally charging the battery during storage will extend battery life.
8. Store machine in dry place away from flames

TRACTOR TROUBLE SHOOTING GUIDE

SYMPTOMS	PROBABLE CAUSES	SUGGESTED REMEDIES
Starter Does Not Crank	Ignition Interlock Safety System Not Engaged	Engage System
	Safety Switch Faulty	Replace Switch
	PTO Switch in On Position	Put Switch in Off Position
	PTO Switch Faulty	Replace Switch
	Weak or Dead Battery	Recharge or Replace Battery
	Fuse Blown	Replace Fuse
	For Additional Causes	See Owner's Manual
Engine Cranks But Does Not Start	No Gas or Line Plugged	Fill Tank or Replace Line
	No Fire at Spark Plug	Clean or Replace Spark Plug See Engine Manual or Dealer
	Numerous Other Causes	See Engine Manual or Dealer
Engine Runs with Loss of Power or Excessive Black Exhaust	Restriction in Air Cleaner	Service Air Cleaner
	Poor Compression or Timing	See Engine Manual or Dealer
Tractor Jerky When Starting or Tractor Operates in One Direction Only	Steering Need Adjustment	Adjust Steering
	Hydraulic Pump or Wheel Motor Faulty	See Your Dealer
	Oil has been Contaminated with Water or Dirt	Drain Oil From System and Replace or See Your Dealer
Hydraulic System Operating Hot		
	Cooling fins or Oil Cooler Plugged	Clean Cooling Fins and/or Oil Cooler
	Hydraulic Pump Faulty	See Your Dealer
Tractor Creeps When Steering Levers in Neutral	Steering Out of Adjustment	Adjust Steering
Tractor Creeps or Veers in One Direction	Steering Out of Adjustment	Adjust Steering
	Wheel Motor Faulty	
		See Your Dealer
Tractor Creeps with Brake on.	Brake Band Worn	See Your Dealer
Engine Over Heating	Intake Screen Clogged	Clean Screen
	Cooling Fins Clogged	See Engine Manual for Cleaning
Engine Oil Pressure Low	Low Oil Level	Add Oil
	Oil Sending Unit Faulty	See Your Dealer
	Oil Diluted or Grade Too Light	Change Oil and Check for Source of Contamination

TRACTOR TROUBLE SHOOTING GUIDE (CONT.)

SYMPTOMS	PROBABLE CAUSES	SUGGESTED REMEDIES	
High Oil Consumption Engine Knocks and Other Engine Noises	Numerous Causes	See Engine Manual	
Electric Clutch Will Not Engage	Loose or Faulty Wiring	Check Wiring	
	Seat Switch Faulty	Change Seat Switch	
	Clutch Out of Adjustment	See Your Dealer	
Grass Cut Uneven	Deck Height Adjustment Not Even on Both Sides	Adjust Height	
	Tire Pressure Uneven	Check Tire Pressure	

HAZARD DECALS

These decals have been placed on the deck to instruct the operator and to warn of safety hazards. It is very important that they are in place and visible at all times. Replace damaged or missing decals immediately.

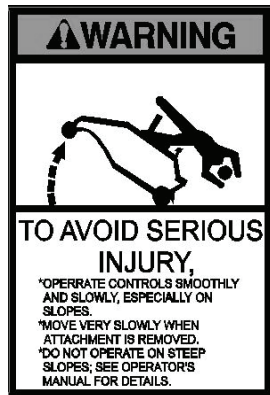
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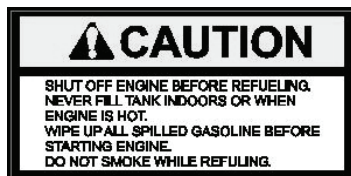
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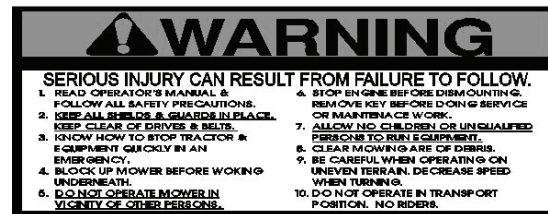
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ZIPPER WARRANTY

As a condition of the Zipper Mower warranty the owner and operator are fully responsible for having read, and understand the proper operation and care of the Zipper unit before attempting to operate the Machine.

Zipper Mowers warrants its products, upon date of delivery to the original purchaser for one year (12 months) for commercial use and two years (24 months) for private estate use.

Zipper Mowers warrants that it will repair, or replace without charge to the original purchaser for materials and labor of any component or part manufactured by Zipper found to be defective in material and/or workmanship.

**This warranty will not take effect unless the owner registration, supplied with the machine, is signed and returned to: Zipper Mowers within 10 days of purchase.
PO Box 246
Augusta, KS. 67010**

To obtain warranty service, the unit or part must returned to an authorized distributor or dealer, transportation prepaid. Upon receipt of the warranty claim and part, Zipper will commence performance of its obligations under this warranty.

This warranty is void if the part or component product has been repaired or serviced by anyone other than an authorized distributor or dealer, or if the product is damaged from failure to operate as instructed, or because of accident, misuse or abuse, or if the product is damaged from failure to comply with proper maintenance as instructed.

THIS WARRANTY DOES NOT COVER:

Normal maintenance and/or replacement of maintenance and wear items such as lubricants, filters, blades, brakes, spark plugs, belts, rubber hoses, light bulbs, ignition & tune up parts and repainting or touch up.

Tires, Belts and Batteries are considered to be consumable wear items, and are warranted for a period of 90 days against materials or workmanship defects, not for wear or abuse.

Damage or Defects resulting from misuse, neglect, alteration, accident or negligence.

Damage, or Defects resulting from repairs or modifications by persons other than an authorized Zipper Dealer

Engines which are warranted by their respective manufacturers

Transportation to and from dealership or services calls made by dealers, ie., driving time, towing, pickup and delivery.

